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LONG RANGE FORECASTS

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The proposed revised method of Medium-Range Forecasting.

by

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The revised method of medium range forecasting developed in the Research Section at Stonehouse is briefly as follows:-

1. In place of the present method of harmonic analysis over uniform periods of 72 days, separate periods of 72, 48, 36, 24, 18 and 12 days are analysed graphically to give the cos and sin terms of the first harmonic of each wave of these lengths.

2. A series of charts of the cos and sin terms of any one wave, obtained by chain analysis with a fixed origin, advancing by steps of three days, is studied (in the way that a forecaster studies a series of synoptic charts) and a reasoned forecast is made (by a combination of estimation and mathematical projection) of its probable distribution in the wave-length centred on the day to be forecast.

3. These cos and sin term charts are integrated over two successive periods of 6 days commencing with the first day of the forecast period, and added. This gives an approximation to the difference from normal of the average forecast pressure distribution during each of these periods of six days.

4. Meanwhile a series of charts of pressure distribution averaged over 6, 12 and 30 days has been analysed, and from the developments in progress, combined with the development of similar situations in past years, independent charts are constructed showing the probable average deviation of pressure from normal in the next two periods of six days each. These are termed as "trend" forecasts.

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5. The sums of integrations of the forecast waves are compared with the trend forecasts. Divergencies are considered in the light of (a) the steadiness of the various waves; (b) the reliability of the trend forecasts in different areas; and suitable adjustments are made to the forecasts of the cos and sin terms of the individual waves.

6. These corrected waves are then evaluated for each of the days to be forecast, and combined with the normal distribution of pressure for the month to give the forecast distribution on each day.

Trial forecasts for three days were made by this method and proved reasonably successful for a first attempt. They suggested that it is practicable and will not require more staff than is engaged on the present trial.